

JP1986-61141116- Abstract Oshima Semiconductor Substrate

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 61-141116

(43)Date of publication of application : 28.06.1986

(51)Int.Cl.

H01L 21/20

H01L 21/205

H01L 29/80

H01S 3/18

(21)Application number : 59-263364

(71)Applicant : SEIKO EPSON CORP

(22)Date of filing : 13.12.1984

(72)Inventor : OSHIMA HIROYUKI  
IWANO HIDEAKI  
KOMATSU HIROSHI  
TSUNEKAWA YOSHIFUMI**(54) SEMICONDUCTOR SUBSTRATE**

(57)Abstract:

**PURPOSE:** To contrive the improvement in crystallizability of a Ge thin film by alleviating the mismatching of the lattice by changing a composition ratio  $x$  of the  $\text{Si}1\text{-xGe}x$ , which is arranged between an Si substrate and a Ge thin film as a buffer layer, from  $x=0$  to  $x=1$  continuously and monotonously from the Si substrate side toward the Ge thin film.

**CONSTITUTION:** On an Si substrate 101, an  $\text{Si}1\text{-xGe}x$  thin film 102 which is to be a buffer layer is formed and a Ge thin film 103 and a GaAs thin film 104 are formed on that. A composition ratio  $x$  of the  $\text{Si}1\text{-xGe}x$  thin film is  $x=0$ , i.e., the composition of Si in the position where it contacts with the underlying Si substrate 101, and  $x=1$ , i.e., the composition of Ge in the position where it contacts with the Ge thin film 103 above. Between them, a value of  $x$  changes continuously and monotonously from 0 to 1 and the mismatching between Si and Ge is alleviated. The  $\text{Si}1\text{-xGe}x$  thin film can be formed by a reduced CVD method using monosilane gas and german gas. As the composition ratio  $x$  is controlled by a flow ratio of the gas, it can be changed as it is desired by changing a gas flow ratio continuously and monotonously.

Patent Number: JP51141116  
Publication date: 1986-06-28  
Inventor(s): OSHIMA HIROYUKI; others: 03  
Applicant(s): SEIKO EPSON CORP  
Requested Patent: ☐ JP51141116  
Application Number: JP19840263364 19841213  
Priority Number(s):  
IPC Classification: H01L21/20; H01L21/205; H01L29/80; H01S3/18  
EC Classification:  
EC Classification:  
Equivalents: